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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,914	09/23/2003	Nishant Sinha	2269-5859US (02-0390.00/U)	2525
24247	7590	06/09/2006	EXAMINER LINDSAY JR, WALTER LEE	
TRASK BRITT P.O. BOX 2550 SALT LAKE CITY, UT 84110			ART UNIT 2812	PAPER NUMBER

DATE MAILED: 06/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/668,914

Applicant(s)

SINHA, NISHANT

Examiner

Walter L. Lindsay, Jr.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 25-32 and 64-66 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25-30, 64 and 65 is/are rejected.
- 7) ☒ Claim(s) 31, 32 and 66 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                | Paper No(s)/Mail Date. ____.  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/27/06</u> .   | 6) <input type="checkbox"/> Other: ____.                                    |

### **DETAILED ACTION**

This Office Action is in response to an RCE filed on 3/21/2006.

Currently, claims 25-32 and 64-66 are pending.

#### ***Claim Rejections - 35 USC § 112***

The rejection under 35 USC section 112 has been removed.

#### ***Claim Objections***

1. Claim 29 is objected to because of the following informalities: the seed layer cannot consist of silicon nitride. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 25-30 and 64-65 are rejected under 35 U.S.C. 102(e) as being anticipated by Chakravorty et al. (U.S. Publication No. 2003/0168342 filed 3/12/2003).

Chakravorty shows the method as claimed in Figs. 3A-3F and corresponding text as: a substrate (300) having a first surface (315) and an opposing second surface and including an aperture (305) that communicates with the first surface and extends partially through the substrate [0042]; at least one via (305) extending into the first

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surface of the substrate and terminating short of the opposing, second surface and including a seed layer (such as sputter-deposited or electroless-deposited copper [0021]) comprising conductive material at least partially over a surface of the aperture, an annular conductive layer (325) contacting the seed layer and a filler material (330, 335) circumscribed by and contacting the annular conductive layer [0043-0047] (claim 25). Chakravorty teaches that the annular conductive layer comprises a metal layer formed on the seed layer [0044] (claim 26). Chakravorty teaches that the filler material is selected from the group consisting of spin-on-glass, polysilicon, solder paste and a solder alloy [0046] (claim 27). Chakravorty teaches that the filler material is either a conductive or a nonconductive filler material [0046] (claim 28). Chakravorty teaches that the seed layer is selected from the group consisting of titanium nitride, titanium, tantalum nitride, copper, silicon nitride and a polysilicon [0044] (claim 29). Chakravorty teaches that the metal layer is selected from the group of metals consisting of nickel, cobalt, copper, silver, titanium, iridium, gold, tungsten, tantalum, molybdenum, platinum, palladium, nickel-phosphorus, palladium-phosphorus, cobalt-phosphorus, a Co-W-P alloy, alloys of the foregoing metals and mixtures of any of the foregoing [0044] (claim 30).

Chakravorty shows the method as claimed in Figs. 3A-3F and corresponding text as: a substrate (300) having a first surface (315) and an opposing, second surface [0042]; and at least one via (305) extending into the first surface of the substrate and terminating short of the opposing, second surface and including solder that extends from the first surface [0043-0047] (claim 64). Chakravorty teaches that an insulative

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layer (330) located between the conductive filler material (335) and the substrate [0046] (claim 65).

***Allowable Subject Matter***

4. Claims 31-32 and 66 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter: the prior art, either singly or in combination fails to anticipate or render obvious, the limitations of:

...an insulative layer located between the annular conductive layer and the substrate, as required by claim 31, as it depends from claim 25; and

...a barrier layer on the first surface, as required by claims 32 and 66.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter L. Lindsay, Jr. whose telephone number is (571) 272-1674. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Walter L. Lindsay, Jr.  
Primary Examiner  
Art Unit 2812

WLL  
  
June 5, 2006